UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/653,751	09/03/2003	Margaret E. Knight	5760-12800	3666

		EXAMINER
7590	02/24/2006	NGUYEN, HIEP T

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ART UNIT	PAPER NUMBER
2187	

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)
Office Action Summary		10/653,751	KNIGHT ET AL.
		Examiner	Art Unit
		Hiep T. Nguyen	2187

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>03 September 2003</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-34</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-34</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/24/04</u>.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1. Claims 1-34 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> a. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al.,

U.S. patent No. 6,912,635 [hereafter, Patterson] in view of well-known features of which Official

Notice is hereby taken.

    a. <u>As per claim 1</u>:

        i. Patterson teaches a method for balancing input/output load for a plurality of storage devices (216), the method comprising:

            1. Monitoring accesses to addresses or sectors located on the storage devices col. 6, lines 24-32];

            2. Storing data indicating the access frequency to each address or sector; and determining a list of most recently used addresses or sectors based on the data indicating the access frequency [col. 6, lines 32-39]; and

            3. Balancing the most frequently used data at the addresses or sectors across the plurality of storage devices col. 6, line 40 through col. 7, line 5].

        ii. Patterson, however, does not teach that his addresses are chunks comprise one or more file system clusters.

        iii. Organize information in units of chunks or file system clusters have been known and commonly practiced in the pertinent art. Furthermore, one having ordinary

        skill in the art looking at the teaching of Patterson would readily recognize that the addresses being monitored by the system could be any commonly used/practiced unit of storage including chunks and/or file system clusters.

    iv. Accordingly, it would have been obvious to one having ordinary skill in the pertinent art at the time the invention was made to further configure the Patterson system to monitor and determine the most recently used addresses in the unit of chunks and/or file system clusters. It would have been obvious because it is no more than selecting an address unit among well known and commonly used address units in the pertinent art to be monitored. The tradeoffs between selecting a large address unit [e.g., chunk and/or file system clusters] and selecting small address unit [block, sector] to monitored is within the level of ordinary skill in the art.

b. As per claim 2: the further claimed limitation of "wherein the plurality of storage devices comprises a plurality of disks" is directly taught by Patterson [see figure 2].

c. As per claim 3: similarly to claim 1: organizing and/or configured storage location in units of volumes having a plurality of chunks has also been known and commonly practiced in the pertinent art. Again selecting an address unit among well known and commonly used address units in the pertinent art to be monitored would have been obvious to one having ordinary skill in the pertinent art at the time the invention was made.

d. As per claims 4-8 and 10:

    i. Graphical user interface has also been known and widely used in the pertinent art for displaying information to be monitored and/or control parameters. Accordingly it would have been obvious to one having ordinary skill in the pertinent art at the time the invention was made to employ a graphical user interface for displaying the information relating the to memory addresses being monitored by the system and/or control parameters that are input from a user. The advantage of using graphical user interface would have been readily

recognized by one having ordinary skill in the art at the time the invention was

made.

e. <u>As per claim 9</u>: the further claimed limitation of monitoring read and/or write accesses the

chunks would follow necessarily when the Patterson system is configured to monitor

addresses in units of chunks as mentioned above.

f. <u>As per claim 11-12</u>, the further claimed limitations would also follow necessarily when the

Patterson system is configured to monitor addresses in the units of chunks, in the

manner as mentioned in the rejection of claim 1 above.

g. <u>As per claims 13-15</u>: selecting a memory location that can be accessed rapidly such as

the center of a disk for storing most frequently accessed data has also been known and

commonly practiced in the pertinent art. Accordingly, it would have been obvious to one

having ordinary skill in the art to further configure the Patterson system to select a

memory location [e.g., the center of the disk] in a second memory device that can be

accessed rapidly to store the most recently used data that was migrated from the first

storage device.

h. <u>As per claims 16-17</u>, the claimed method basically encompass the same scope as that of

claims 1-2 with an exception that the address unit being monitored is in clusters instead

of chunks as claimed in claims 1-2. Again, selecting an address unit among the well-

known units to be monitored would have been obvious to one having ordinary skill in the

art at the time the invention was made for the same reason as set forth for that in the

rejection of claim 1.

i. <u>As per claims 16-29</u>: the claimed system basically encompasses the necessary

elements for carrying the claimed steps in claims 1-15. Accordingly, claims 16-29 are

rejected for the same reasons as set forth for that in claims 1-15.

j. <u>As per claims 30-31</u>, the claimed storage media comprise no more than instruction for

carrying the steps relating to displaying the graphical user interface and balancing the

most recently used chunks across the storage devices, as recited in claims 1-15, accordingly, the claims are also rejected for the same reason as et forth for clams 1-15.

k.   As per claims 32-34, the claimed memory medium comprises no more than instruction for receiving information indicating access statistics for a plurality of chunks located in a plurality of storage devices and determining which locations the most recently used chunks will be moved to in order to balance the chunks across the plurality of storage devices, as recited in claims 1-15. Accordingly, the claims are also rejection for the same reason as set forth for claims 1-15.

Conclusion

4.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.   Abir US2003/0126252, teaches a method and apparatus for balancing load among a plurality of server computers connected via a network to a client computer.

b.   Ulrich et al., 6,990,667, teaches a file system that balance the loading of files the capacity of drives that are associated with the files.

c.   Taoda, 5,724,552, teaches a disk array management unit for distributively recording data in a plurality of disks depending on data access frequency.

5.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hiep T. Nguyen whose telephone number is (571) 272-4197. The examiner can normally be reached on Monday-Friday from 9:30 am to 6:00 pm.

6.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

7. Information regarding the status of an application may be obtained from the Patent Application

Information Retrieval (PAIR) system. Status information for published applications may be

obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system,

see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hiep T Nguyen
Primary Examiner
Art Unit 2187

HTN